medical sciences

MDPI

Article

Patterns, Types, and Outcomes of Head Injury in Aseer Region, Kingdom of Saudi Arabia

Firstname Lastname [1], Firstname Lastname [2] and Firstname Lastname [2,*]

[1] Affiliation 1; e-mail@e-mail.com
[2] Affiliation 2; e-mail@e-mail.com
* Correspondence: e-mail@e-mail.com; Tel.: (optional; include country code; if there are multiple corresponding authors, add author initials)

Abstract: ~~*Background.*~~ Head injuries contribute to ~~almost~~ approximately 50% of all injuries. ~~Head injuries are still one of the~~ and remain a ~~major~~leading cause~~s~~ of loss of life and ~~loss of~~ function among young adults. Currently, ~~Nowadays, head injury has become a major community problem. Recently, head injury has become one of the biggest issues of almost m~~more than 57 million people ~~in the world~~worldwide live~~ing~~ with ~~the~~ traumatic brain injury-related neurological ~~problem raised by TBI~~issues, ~~in which~~of whom 10 million ~~people~~ require hospital~~-~~based care. This retrospective cross-sectional study aimed ~~*Objectives.* T~~to determine the epidemiological ~~aspects~~ characteristics and outcomes of patients with head injury ~~(HI)~~ treated ~~in~~ at Aseer Central Hospital (ACH). ~~*Materials and Methods.* This is a retrospective cross-sectional study.~~ Data were ~~gathered~~ collected from patient~~s'~~ files and the registrar's database of ACH. ~~The study duration was~~ between January 2015~~–~~ and December 2017. ~~All~~ We included patients with head injury admitted to ACH during the study ~~duration~~ period~~were included in the study~~. We calculated ~~SPSS software was used for analysis. D~~descriptive statistics ~~were obtained (mean SD frequencies, percentages). Statistical tests,~~and used the t ~~test~~, and chi-squared test ~~were applied~~ to ~~measure~~ examine ~~the~~ significant difference~~s among the~~between variables. ~~P-value less than 0.05 was considered as a significant difference. *Results.* There were~~Of ~~353~~ patients with head injury~~, and the~~ (age [mean ~~—±~~ ± SD~~standard deviation~~] ~~of age, was~~ 27.01 ~~—±~~ ±13.9 years), 87.3% were male and 12.7% were female. ~~Motor vehicle accidents (MVA) accounted for (89.3%) of head injury. A total of 87.3% of the patients were male while 12.7% were female. *Conclusion.* In this study, w~~We observed that motor vehicle accidents~~MVA is~~ comprised the leading cause of brain/head injuries (89.3% of all such injuries) in the ~~KSA~~Kingdom of Saudi Arabia, despite the implementations of new speeding rules. However, ~~with~~ new regulations ~~of~~ forbidding cell-phone use while driving and ~~forcing~~ requiring ~~the~~ seat belts to be worn ~~regulations, a major impact on these numbers is expected~~are expected to markedly affect these numbers ~~in the future.~~. Thus, a future study is recommended to assess these expectations.

Keywords: keyword 1; keyword 2; keyword 3

Citation: Lastname, F.; Lastname, F.; Lastname, F. Title. *Med. Sci.* **2021**, *9*, x. https://doi.org/10.3390/xxxxx

Received: date
Accepted: date
Published: date

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

Commented [A1]: Please note that I have transferred the manuscript to the journal's template; use of the template is required. An empty copy of the template can be found at: https://www.mdpi.com/files/word-templates/medsci-template.dot

Commented [A2]: Please replace the yellow highlights with the required author information in the format provided in the template. The relevant journal instructions are: Authors' full first and last names must be provided. The initials of any middle names can be added. The PubMed/MEDLINE standard format is used for affiliations: complete address information including city, zip code, state/province, and country. At least one author

Commented [A3]: **Author Biography:**

Commented [A4]: Please note that the abstract should be limited to 200 words and comprise o

Commented [A5]: These sentences represent unnecessary background information. Consider

Commented [A6]: Please consider mentioning the rationale for reporting the study.

Commented [A7]: Please clarify: was this an independent samples two-tailed t test?

Commented [A8]: Please clarify: which types of variables were analyzed using the t-test, and

Commented [A9]: Please note that that the abstract, in its present form, does not comprise

Commented [A10]: Please note that you have not provided statistical results from your study

Commented [A11]: This statement presents a potential biased expectation without scientific

Commented [A12]: This statement is speculation and not directly related to the aims of your stud

Commented [A13]: Please replace the yellow highlights with up to 10 keywords in the forma

Commented [A14]: **Graphical Abstract:**

Head injuries contribute to ~~almost~~ approximately 50% of all injuries~~. Head injuries are~~ and are a major cause of loss of life and ~~loss of organs~~ function among young adults [1–4].

~~Nowadays, h~~Head injury has been reported as~~has become one of the biggest issues of almost~~ an issue of great concern, with more than 57 million people ~~in the whole world~~worldwide living with ~~the~~ traumatic brain injury (TBI)-related neurological ~~problem raised by TBI~~issues~~,~~ ~~in which~~of these, 10 million ~~people~~ require hospital~~-~~based care [5].

Head injuries ~~are~~ comprise an ~~significant~~ important cause~~s~~ of death~~s~~ and disability irrespective of age ~~groups~~. In light of the epidemiological findings from the last ~~ten~~ 10 years, some effective preventive measures ~~were~~ have been ~~planned~~implemented, such as ensuring the most appropriate health~~–~~care provision for both the acute care and rehabilitation of survivors of injury with ~~disabled survivors~~ disabilities [6]. Head injury accounted for two-thirds~~2/3~~ of in~~-~~hospital trauma deaths. Estimated epidemiological~~y~~ data ~~depicted~~ showed that the frequency of TBI is high~~er~~ in North America and Europe. On average, 2.8 million people ~~had~~ sustained a TBI annually [6]. Head injury also ~~affected the economy of the countries~~has economic consequences, ~~produced~~results in ~~some~~ financial losses, and reduce~~d~~ ~~the~~ productivity. Almost ~~US$~~60 billion USD was ~~used~~ utilized to overcome ~~the damages of HI~~ head injury-related damages in ~~year~~ 2000 [7, 8]. The estimated population incidence of ~~traumatic brain injury~~TBI in the United States was 73.5/100,000 individuals. A US-based study reported that head injuries were most common among young children [9, 10]. In ~~the year of~~ 1998, in Malaysia, 4.75% of patients admitted to the emergency ~~patients~~ department ~~were suffering from~~had head injuries [11]. One epidemiological~~y~~ study ~~stated~~ reported that 69 million individuals worldwide were estimated to ~~suffer from~~have TBI [12].

~~Based on~~According to an Ethiopian study, head injuries are more common in male~~s~~ than in female individuals~~s~~. Death~~s~~ ~~are~~ is positively ~~correlated~~ associated with severe head injuries in all age groups. Based on the Glasgow Coma Scale (GCS) score, h~~H~~ead injury was mild in ~~the majority of~~most ~~head injury victims~~cases~~;~~ ~~,~~ this degree was followed by severe and moderate degrees of injury ~~based on the Glasgow Coma Scale (GCS) score~~ [13].

According to a Nigerian study, head injury was observed to be the most common ~~among all injuries~~type of injury [14].

The Saudi population size ~~is~~ was ~~estimated~~ reported to be 33,920,622, according to the February 2019 United Nations estimates. Among 1,870 individuals implicated in motor vehicle accidents (MVAs) ~~victims~~ in the Kingdom of Saudi Arabia (KSA), 30% ~~of them~~ died as a result of the accident~~.~~; ~~A~~a further alarming finding was that most patients (56.7%) had head injuries [15].

According to another study from the KSA, 32.1% of 1,219 patients ~~suffered~~ had head injuries, and MVAs were the leading cause of ~~head~~ such injuries (34.2%) [16].

The objective of this study ~~is~~ was to determine the epidemiological ~~aspects~~ characteristics of patients with head injury ~~(HI)~~ who were treated ~~in~~ at Aseer Central Hospital (ACH), Aseer region, a region ~~which~~ that ~~holds~~ has one of the highest numbers of car accidents based on the census of the Ministry of Interior~~,~~ of the KSA.

2. Materials and Methods

This ~~is~~ was a retrospective cross-sectional study. Data were ~~gathered~~ retrieved from patient~~s'~~ files and the registrar's database of ~~the~~ ACH. The study ~~duration was~~was conducted between January 2015~~–~~ and December 2017. All patients with head injury admitted to ACH during the study ~~duration~~ period were included in the study.

~~The variable included~~We collected ~~demographic~~ data on demographics, the ~~Glasgow coma~~ GCS score, Glasgow ~~o~~Outcome S~~s~~core, type of head injury, mechanism of injury, type of surgery ~~type~~, and outcomes of ~~disposition of patients~~patients. Data were ~~entered~~ analyzed ~~in~~ with ~~the~~ SPSS ver. 20 ~~software~~ (IBM Corp., Armonk, NY)~~for analysis~~.

Commented [A15]: The in-text citations are in the journal's preferred format and in correct numerical order.

Commented [A16]: Please note that this reference is from 1996; therefore, it cannot be used in support of a sentence discussing epidemiological findings from the last 10 years. Please consider replacing with a more recent reference.

Commented [A17]: Kindly specify when and add a supporting reference.

Commented [A18]: Kindly specify when and compared to where and add a supporting reference.

Commented [A19]: As previously noted, this reference from 1996 may not be appropriate for use here. It is quite reasonable to assume that these numbers will have changed in the past 2.5 ...

Commented [A20]: Please note that abbreviations should be used consistently once they are defined.

Commented [A21]: Kindly add when and a supporting reference.

Commented [A22]: Please note that this is repetitive and should ideally be removed. If you are referring to [13], you could retain the senten ...

Commented [A23]: Please provide a reference citation.

Commented [A24]: Please consider adding content on the rationale for the study.

Commented [A25]: Please note that the Introduction should briefly discuss previous findings in the field to set the context for the ...

Commented [A26]: Please add here all available ethics-related information. Was the study approved by the relevant institution review ...

Commented [A27]: Please consider augmenting the Methods section. For instance, you could elaborate on the GCS and Glasgow Outcome ...

Descriptive statistics were ~~obtained~~ calculated [~~(~~means, ~~SD~~ standard deviations (SDs), frequencies, and percentages~~])~~. ~~Statistical tests,~~We used the t-test~~,~~ and ~~and~~ chi-squared test ~~were applied~~ to ~~measure the~~examine significant differences ~~among the~~between variables. A P-value ~~less~~ lower than 0.05 was considered ~~as a~~ significant ~~difference~~.

3. Results

~~Out o~~ The mean (± SD) age of 353 patients with head injury~~, we observed that the mean ± SD of age~~ was 27.01 ± 13.9 years. Figure ~~1~~1 ~~showed~~ shows that MVAs (89.3%) ~~is the most~~were the leading cause of head injury. ~~A total of~~Of all patients, 87.3% ~~of the patients~~ were male, while 12.7% were female; 94% were Saudi nationals, while 6% were foreign nationals; 55.3% resided in high altitudes (mountain areas), 38.3 in low altitudes (plains), and 8.4% in other regions~~s~~; and 42.5% were employed~~,~~; 15.9% were unemployed~~,~~; 34.6% were students~~,~~; and 4% were workers (Table 1). Figure 2 ~~depicted~~ shows that 34% of patients were ~~went to~~placed in rehabilitation centers, 63.2% were discharged, and 2.8% were referred to other centers during the acute phase either based on ~~either~~ the family's~~/s~~ or patient's request or when the patient ~~being~~ was from another province.

Figure 1~~:~~. ~~Mechanism~~ Causes of head injury~~ies~~ (n=353).

Figure 2~~:~~. ~~Disposition~~ Outcomes of patients with head injury ~~patients~~.

Table 1~~:~~. Demographic variables (n=353).

~~A total of~~Of all patients, 46.7% had severe GCS scores ~~1~~ (GCS ≤ ~~<=~~8), 42.2% had moderate scores, and 11.1% had mild scores (Table 2). As described in ~~Based on~~ Table 3, 2.5% of the patients died, while 64.3% fully ~~had good recovery~~recovered. Table 4 shows~~ed~~ that ~~we did not observe any~~there was no significant difference between the Glasgow ~~o~~Outcome ~~s~~Score and head injury types~~,~~ although patients with subdural and intraventricular hemorrhages tend~~ed~~ to have low~~er scores on~~ Glasgow ~~o~~Outcome ~~s~~Scores. Table 5 shows that there was a significant difference between the type of head injury and the GCS score~~s~~ (P<0.05), as lower GCS scores upon presentation were observed in patients with subdural hematomas and ~~patients with~~those with brain contusions ~~are noticed to have Glasgow coma score upon presentation lower~~ than ~~patients~~ in those ~~who have~~ with other types of head~~-~~ injury ~~types~~. ~~In~~ Table 6~~, it is~~ clearly shows~~n~~ that there ~~is~~ was a significant difference between the type of head injur~~i~~ye~~s~~ and outcome~~s~~ in terms of placement at the end of acute management (P~~p~~=0.0001), ~~where~~ as a greater proportion of patients with intraventricular hemorrhage~~s~~ and subdural hemorrhage~~s~~ than of patients with other types of head injury ~~tend to be~~were placed in rehabilitation ~~service~~ centers~~more than patients with other head injury types~~. Table 7 shows that patients with subdural hematoma ~~were undergoing~~either underwent craniectomy ~~if they were to get operated on; otherwise they tend to be~~or were treated medically. ~~In regard to~~ Almost 30% of patients with traumatic subarachnoid hemorrhage~~, almost 30% of them were undergoing~~underwent craniectomy~~, of course not for the subarachnoid itself, however, due to~~ because of major underlying brain edema. ~~Craniectomies were less likely to be done in p~~Patients with brain contusions or epidural hematomas were less likely to undergo craniectomy (P<0.05).

Table 2~~:~~. ~~Categories~~ Patient categorization based on~~of~~ the Glasgow C~~e~~oma Scale score.

Table 3~~:~~. ~~Overall~~ Patient categorization based on the Glasgow O~~o~~utcome ~~s~~Score ~~in head injury patients~~.

Table 4~~:~~. Crosstabulation of Glasgow Outcome Scores and the type of head injury~~Glasgow outcome based on type of head injury type~~.

Commented [A28]: Please describe this test in more detail. Was this an independent samples, two-tailed t-test? What assumptions were made when choosing this test? Was your data confirmed to be both continuous normally distributed, perhaps by a Shapiro-Wilk test, and thus this parametric test was chosen?

Commented [A29]: Please consider justifying the use of parametric tests (e.g., normality checks).

Commented [A30]: Please carefully consider your significant figures here. Is it justified to report age to the 1/100th place? Did the patient records include age at injury to such a high degree of precision? You are likely not justified in reporti...

Commented [A31]: Please check if you can be more specific at this instance.

Commented [A32]: Please clarify the difference between a "worker" and an "employed"...

Commented [A33]: This is a repetition of the information presented in the Table. Please...

Commented [A34]: Please note that Figure 2 and Table 2 may not be essential, as the information...

Commented [A35]: Please note that in the figure, this is "higher centers"; please ensure consisten...

Commented [A36]: Please note that all tables and figures, along with their titles and legends,...

Commented [A37]: Important: Please note that the tables should be provided as editable files,...

Commented [A38]: This passage represents unnecessary repetition of your data between yo...

Commented [A39]: Please describe which statistical methods were used to determine the...

Commented [A40]: Please note that I have revised here based on the data presentation in...

Commented [A41]: Please note that I have revised this sentence for brevity.

Commented [A42]: Please note that the deleted passage is unnecessary; all patients included in...

Table 5~~:~~. Crosstabulation of the type of head injury and Glasgow Coma Scale scores~~Comparison of type of head injuries with GCS scores~~.

Table 6~~:~~. Crosstabulation of the type of head injury and outcomes of patients~~Comparison of Type of head injuries with outcome status~~.

Table 7~~:~~. Crosstabulation of the type of head injury and type of surgery~~Comparison of type of head injuries with surgery types~~.

4. Discussion

~~Our aim was to~~In this study, we ~~discuss~~ examined the epidemiological ~~aspects~~ characteristics and outcomes of patients with head injury ~~(HI)~~ treated ~~in~~ at ACH~~, Abha, KSA~~ and found MVAs to be the leading cause of injury; while most patients recovered, 2.5% died, 22.3% underwent surgery, and 34% were placed in rehabilitation centers.

The occurrence of head injuries refers to the number of new cases recognized in a certain period. For ~~A~~almost~~Almost each~~ every year under study, approximately 1.7 million head ~~injury~~/brain injury cases were recorded in the United States (in all age groups), ~~and it is a~~ contributing ~~factor in~~ to approximately 30.5% of injury-related deaths ~~related to injuries~~. ~~Some studies~~A previous study showed ~~the likelihood of brain injury being found more, in the~~that babies and toddlers (0 to 4 years), adolescents from 15 to 19 years, and ~~matures~~ adults ~~having age ≥ of~~ 65 years ~~or more~~were more likely to sustain a brain injury [17].

According to a Malaysian study, MVAs ~~were~~ comprise the most common cause of head injury worldwide, ~~after~~ together with accidents at home, at the workplace, and during ~~a~~ sports event~~s~~. In this study, 10% of patients were referred to higher centers, 29% ~~went through the~~underwent rehabilitation ~~process~~, and 68% were discharged. Based on the findings of the Malaysian study, head injury was ~~one of the increasing~~the fifth (7.86%) most common cause~~s~~ of hospitalization in Malaysian ~~government~~ public hospitals in 2014 [18].

In one review of 26 studies ~~(Tagliaferri et al.)~~, ~~traumatic brain injury (~~TBI~~)~~ ~~is~~ was found to be the most common cause of ~~most~~ trauma-related death~~s~~ in European countries [19], ~~that is,~~accounting for 235~~–~~/100,000 patients with a mean mortality of 15/100,000 patients per year. In our study, MVAs ~~were~~ comprised the ~~major~~ leading cause of head injuries, ~~which is~~ comparable with the findings of other studies. For example, one study ~~reflected~~ found that, in five European countries, traffic accidents were the ~~major~~ most common (47%) cause of head injur~~ies~~ [20].

In ~~this~~ the present study, ~~there were~~ 87.3% of participants were male and 12.7% were female; another study ~~in~~ from ~~Saudi Arabia~~the KSA ~~described~~ reported that ~~males~~ men were more ~~affected with~~likely than women to sustain a head injury ~~than females~~ (78.4% vs. 21.6%) [21]. ~~These results were also comparable with those of Jason Kisser (2017) [22].~~ The results indicated that men are 2.4 times more ~~often~~ likely than women to sustain a TBI in their lifetime ~~than women~~. These results were also comparable to those reported by Kisser et al. [22].

The ~~Glasgow Coma Scale (~~GCS~~)~~ score~~, after its introduction in 1974 [23],~~ has been frequently used as ~~one of the most important~~a major outcome predictor~~s~~ ~~of outcome~~ after head injury since its introduction in 1974 [23]. In our study, based on GCS scores, TBIs were severe in 42.2%, moderate in 28.5%, and mild in 11.1% of patients. In another study ~~(J. Leitgeb, 2013)~~ [23], ~~the following pattern was observed:~~ 57% of participants with severe TBI had GCS scores of 13–15, 19% had scores of 10–12, 9% had scores of 7–9, and 15% had scores of 3–6 upon admission~~.~~. ~~T~~the author~~s~~ ~~stated~~ reported that a low GCS score is more likely to ~~produce~~ lead to unfavorable outcomes.

Our finding that patients with intraventricular hemorrhage~~s~~ ~~have~~ had a worse prognosis and ~~more of them were~~were more frequently placed in rehabilitation centers is

Commented [A43]: Please note that I have added the principal findings to the first sentence of the Discussion to provide a more complete overview of the study (I have added both surgery types).

Commented [A44]: Please note that this is not essential and should ideally be deleted.

Commented [A45]: Please specify the years and add a supporting reference.

Commented [A46]: Please note that I have revised here because you are only referencing one study.

Commented [A47]: Please note that "after" denotes that MVAs are the fourth leading cause of head injury. The meaning in the original sentence from Liew et al.: "Globally, road traffic accident is the commonest cause of head injury, besides accident at home, workplace and during a sports event" is also not entirely clear. I have therefore attempted to retain the original meaning to the extent possible.

Commented [A48]: Please specify in which study; I could not find this information in [18].

Commented [A49]: Please note that I have revised here according to the cited study, as the meaning was somewhat unclear.

Commented [A50]: Please note that in the cited study, this is the most common cause of TBI, not of head injury in general. Moreover, this information is discussed in [20] but was found i ...

Commented [A51]: Please consider moving this sentence to the Method and further discussing instruments used.

Commented [A52]: Please note that this study also discusses patients with (severe) TBI; I have added this for clarity. For consistency, please al ...

Commented [A53]: Please clarify, how does your study compare with these findings from the previously published study? Did GCS correlate ...

~~going~~ in line with the fact that traumatic intraventricular hemorrhage is associated with poor outcomes; however, the difference ~~in our study~~ is that intraventricular hemorrhage~~s were~~ was more frequently observed in our study population [24].

~~In addition to that~~Additionally, acute subdural hematomas remain ~~as a strong challenge~~challenging for neurosurgeons and continue to be associated with less favorable outcomes, despite ~~all~~ advances in medical and surgical treatment~~, where less favorable outcome is still seen;~~. ~~o~~Although the mortality rates have decreased~~ven after decreasing mortality~~, patients with subdural hematomas ~~patients are prone to~~tend to have low~~er score on~~ Glasgow ~~o~~Outcome ~~s~~Scores, and they represent a major portion of patients who need rehabilitation services ~~when~~ after acute treatment ~~is over~~ [25].

The fact that almost 12.5% of our patients ~~are undergoing~~underwent craniectomy ~~surgery~~ reflects that our institution ~~is believing in~~favors decompressive craniectomy, and this may explain the reasonably~~e~~ low mortality rate; however, ~~[26] increase in number~~34% of our patients ~~who are~~were ~~going to~~placed in rehabilitation hospitals or long-term care facilities ~~is 34%~~[26]. These findings reflect the need ~~of~~ for rehabilitation centers in almost every province in the ~~Kingdom~~ KSA ~~in the presence of~~given that MVAs ~~as a~~remain a major national problem.

Since 2010, strict speeding rules and regulations ~~were~~ have been implemented in the KSA, and cameras are now installed within cities and on highways~~,~~; however, countrywide implementation of these measures took ~~it took few years~~ several years~~to cover the whole country~~. In 2018, new rules ~~of forbidden text and~~forbidding texting while driving~~e~~ and issuing traffic tickets for such ~~attitude~~ behavior ~~are~~ were ~~implemented~~ brought into effect and are expected to lower the occurrences of devastating car accidents. In addition, ~~The impact of such regulations is worth reviewing in the next few years and compare to the current numbers.~~

the KSA ~~Saudi Arabia~~ is ~~extremely~~ greatly concerned with ~~the~~ safety features ~~in~~ of its imported vehicles, ~~from all over the world,~~ including airbags and ~~ABS brakes~~anti-lock braking systems. For the last 30 years, all cars have to ~~go for the Periodic Inspection of Vehicle~~undergo periodic vehicle inspections, which ~~is~~ are electronically connected to the car licensing authorities ~~in~~ of the Ministry of Interior (http://www.mvpi.com.sa). Furthermore, Saudi authorities have stopped importing ~~any car~~cars older than 5 years since ~~year~~ 2010. The impact of such measures is worth reviewing in the next few years.

~~Our study has some limitations.~~ The principal limitations of this study are ~~The~~its ~~The~~ retrospective nature ~~of the study~~ and the lack of long-term follow-up data ~~of the patients~~ and ~~looking for the~~examination of ~~lifelong~~ long-term consequences ~~like~~ such as seizure and psychiatric disorders ~~and psychiatric consequences are considered as one of the strongest limitations~~. ~~T~~The fact ~~of missing some of the data~~that there were some missing data is ~~also considered as~~ another limitation~~.~~.

5. Conclusions

~~In this study, w~~We ~~observed~~ found that MVAs ~~is~~ were the leading cause of brain/head injuries in the KSA, despite the implementations of new speeding rules. To the best of our knowledge, our study was the first in Aseer region ~~that~~ to shed light on the head injury burden, to ~~looked to~~examine the short-term outcomes, and to address~~ed~~ the fact that~~, despite~~ the new traffic regulations may not suffice~~,~~ and thus,~~,~~ the Aseer region ~~still needs more attention~~should introduce more measures to decrease the numbers of ~~such devastating problems~~accidents leading to head injuries. However, ~~with~~ the new regulations of forbidding cell-phone use while driving and ~~forcing~~ requiring ~~the~~ seat belts to be worn ~~regulations~~are expected to markedly affect these numbers going forward~~, a major impact on these numbers is expected in the future~~. Thus, a future study is recommended to assess these expectations.

Commented [A54]: Please note that this sentence requires revision; the comparison with [24] is unclear. According to [24], please consider: "a previous study also found that 70% of patients with traumatic intraventricular hemorrhage had a poor outcome, but intraventricular hemorrhage was more frequently observed in our study population (11.89% vs. 1.41%)."

Commented [A55]: Please note that this phrasing is not optimal. Please consider the following alternative if your meaning is better conveyed: "In this study, 12.5% of patients underwent craniectomy, which a preferred procedure in ou ...

Commented [A56]: Please note that the meaning in this sentence is unclear, and I could not find this information in the cited article (in the text o ...

Commented [A57]: You seem to be interpreting your findings here. Please check the placement ...

Commented [A58]: Please note that the deleted passage is unnecessary, as it does not contribute to the argument and complicates the sentence.

Commented [A59]: Please note that the deleted passage is unecessary, as it does not contribute to the argument and complicates the sentence.

Commented [A60]: It is not clear how these paragraphs relate to your study and the results ...

Commented [A61]: The missing data will likely be a serious concern to a peer reviewer. Please describe the extend of the missing data and hov ...

Commented [A62]: Because your study did not compare head injuries before and after the implementation of these new speeding rules, th ...

Commented [A63]: These statements are suppositions not supported by a direct interpretation of your data. A peer reviewer is ...

Commented [A64]: Please note that these statements are not based on any data presented within your study, and a peer reviewer is likely ...

Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, X.X. and Y.Y.; methodology, X.X.; software, X.X.; validation, X.X., Y.Y. and Z.Z.; formal analysis, X.X.; investigation, X.X.; resources, X.X.; data curation, X.X.; writing—original draft preparation, X.X.; writing—review and editing, X.X.; visualization, X.X.; supervision, X.X.; project administration, X.X.; funding acquisition, Y.Y. All authors have read and agreed to the published version of the manuscript." Please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

Funding: Please add: "This research received no external funding" or "This research was funded by NAME OF FUNDER, grant number XXX" and "The APC was funded by XXX". Check carefully that the details given are accurate and use the standard spelling of funding agency names at https://search.crossref.org/funding. Any errors may affect your future funding.

Institutional Review Board Statement: In this section, please add the Institutional Review Board Statement and approval number for studies involving humans or animals. Please note that the Editorial Office might ask you for further information. Please add "The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of NAME OF INSTITUTE (protocol code XXX and date of approval)." OR "Ethical review and approval were waived for this study, due to REASON (please provide a detailed justification)." OR "Not applicable." for studies not involving humans or animals. You might also choose to exclude this statement if the study did not involve humans or animals.

Informed Consent Statement: Any research article describing a study involving humans should contain this statement. Please add "Informed consent was obtained from all subjects involved in the study." OR "Patient consent was waived due to REASON (please provide a detailed justification)." OR "Not applicable." for studies not involving humans. You might also choose to exclude this statement if the study did not involve humans.

Written informed consent for publication must be obtained from participating patients who can be identified (including by the patients themselves). Please state "Written informed consent has been obtained from the patient(s) to publish this paper" if applicable.

Data Availability Statement: In this section, please provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. Please refer to suggested Data Availability Statements in section "MDPI Research Data Policies" at https://www.mdpi.com/ethics. You might choose to exclude this statement if the study did not report any data.

Acknowledgments: In this section, you can acknowledge any support given which is not covered by the author contribution or funding sections. This may include administrative and technical support, or donations in kind (e.g., materials used for experiments).

Conflicts of Interest: Declare conflicts of interest or state "The authors declare no conflict of interest." Authors must identify and declare any personal circumstances or interest that may be perceived as inappropriately influencing the representation or interpretation of reported research results. Any role of the funders in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript, or in the decision to publish the results must be declared in this section. If there is no role, please state "The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results".

Commented [A65]: Please note that the sections highlighted in yellow are required.
Kindly replace the template instructions with the appropriate information for each section.

References

1. N. Andelic, "The epidemiology of traumatic brain injury," *The Lancet Neurology*, vol. 12, no. 1, pp. 28-29, 2013.
2. C. Popa, *Neurology Treaty*, National Publishing House, 1997.
3. S. T. Dawodu, Traumatic brain injury (TBI)—Definition, Epidemiology. Pathophysiology. http://emedicine.medscape.com/article/326510-overview.
4. B. Sharma and D. W. Lawrence, "Top-cited articles in traumatic brain injury," *Frontiers in Human Neuroscience*, vol. 8, 2014.
5. D. E. Kimbler, M. Murphy, and K. M. Dhandapani, "Concussion and the adolescent athlete," *Journal of Neuroscience Nursing*, vol. 43, no. 6, pp. 286–290, 2011.
6. B. Jennett, "Epidemiology of head injury," *Journal of Neurology, Neurosurgery & Psychiatry*, vol. 60, no. 4, pp. 362–369, 1996.
7. National Vital Statistics System (NVSS), 2006–2010. Data source is maintained by the CDC National Center for Health Statistics.

Commented [A66]: As instructed, I have not edited the references.
Please ensure that they are formatted according to the journal's instructions and provided examples, such as:
Journal Articles:
1. Author 1, A.B.; Author 2, C.D. Title of the article. *Abbreviated Journal Name* **Year**, *Volume*, page range.

8. National Hospital Discharge Survey (NHDS), 2010; National Hospital Ambulatory Medical Care Survey (NHAMCS), 2010; National vital statistics system (NVSS), 2010. All data sources are maintained by the CDC National Center for Health Statistics.
9. S. R. Reid, J. S. Roesler, A. M. Gaichas, and A. K. Tsai, "The epidemiology of pediatric traumatic brain injury in Minnesota," *JAMA Pediatrics*, vol. 155, no. 7, pp. 784–789, 2001.
10. C. Brudvik, "Child injuries in Bergen, Norway," *Injury*, vol. 31, no. 10, pp. 761–767, 2000.
11. J. Rohana, A. Ong, and A. Hassan, "Epidemiology of head injury in Malaysian children: a hospital-based study," *Med J Malaysia*, vol. 53, no. 3, pp. 217–222, 1998.
12. M. C. Dewan, A. Rattani, S. Gupta et al., "Estimating the global incidence of traumatic brain injury," *Journal of Neurosurgery*, pp. 1–18, 2018.
13. A. Eshete and F. Taye, "Magnitude of severe head injury and its associated factors among head injury patients in gedeo zone, southern ethiopia: a two-year retrospective study," *Ethiopian Journal of Health Sciences*, vol. 28, no. 3, pp. 323–320, 2018.
14. A. O. Adeleye and M. I. Ogun, "Clinical epidemiology of head injury from road-traffic trauma in a developing country in the current era," *Frontiers in Neurology*, vol. 8, 2017.
15. A. Al-Habib, A. A-shail, A. Alqeel et al., "Causes and patterns of adult traumatic head injuries in Saudi Arabia: Implications for injury prevention," *Annals of Saudi Medicine*, vol. 33, no. 4, pp. 351–355, 2013.
16. S. Alhabdan, M. Zamakhshary, M. Alnaimi et al., "Epidemiology of traumatic head injury in children and adolescents in a major trauma center in Saudi Arabia: implications for injury prevention," *Annals of Saudi Medicine*, vol. 33, no. 1, pp. 52–56, 2013.
17. M. Faul, M. M. Wald, L. Wu, and V. G. Coronado, "Traumatic brain injury in the united states: emergency department visits, hospitalizations and deaths 2002–2006," Tech. Rep., Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2010.
18. B. S. Liew, K. Zainab, A. Cecilia, Y. Zarina, and T. Clement, "Early management of head injury in adults in primary care," *Malays Fam Physician*, vol. 12, no. 1, pp. 22–25, 2017.
19. F. Tagliaferri, C. Compagnone, M. Korsic, F. Servadei, and J. Kraus, "A systematic review of brain injury epidemiology in Europe," *Acta Neurochirurgica*, vol. 148, no. 3, pp. 255–267, 2006.
20. M. Majdan, W. Mauritz, I. Wilbacher et al., "Traumatic brain injuries caused by traffic accidents in five European countries: Outcome and public health consequences," *European Journal of Public Health*, vol. 23, no. 4, pp. 682–687, 2013.
21. A. Al-Habib, A. A-shail, A. Alaqeel et al., "Causes and patterns of adult traumatic head injuries in Saudi Arabia: implications for injury prevention," *Annals of Saudi Medicine*, vol. 33, no. 4, pp. 351–355, 2013.
22. J. Kisser, S. R. Waldstein, M. K. Evans, and A. B. Zonderman, "Lifetime prevalence of traumatic brain injury in a demographically diverse community sample," *Brain Injury*, vol. 31, no. 5, pp. 620–623, 2017.
23. J. Leitgeb, W. Mauritz, A. Brazinova et al., "Glasgow Coma Scale score at intensive care unit discharge predicts the 1-year outcome of patients with severe traumatic brain injury," *European Journal of Trauma and Emergency Surgery*, vol. 39, no. 3, pp. 285–292, 2013.
24. C. Atzema, W. R. Mower, J. R. Hoffman, J. F. Holmes, A. J. Killian, and A. B. Wolfson, "Prevalence and prognosis of traumatic intraventricular hemorrhage in patients with blunt head trauma," *Journal of Trauma - Injury Infection and Critical Care*, vol. 60, no. 5, pp. 1010–1017, 2006.
25. P. Taussky, H. R. Widmer, J. Takala, and J. Fandino, "Outcome after acute traumatic subdural and epidural haematoma in Switzerland: a single-centre experience," *Swiss Med Wkly*, vol. 3; (19-20), no. 138, pp. 281–285, 2008.
26. P. J. Hutchinson, A. G. Kolias, I. S. Timofeev et al., "Trial of decompressive craniectomy for traumatic intracranial hypertension," *The New England Journal of Medicine*, vol. 375, no. 12, pp. 1119–1130, 2016